

Cell - the unit of life MCQ Question Answer

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Question: 1. Difference between the prokaryotic and eukaryotic cells in having

- Option A. cell wall
- Option B. nuclear membrane
- Option C. ribosome
- Option D. none of these

Question: 2. Who proposed the theory that Cells arise only from the pre-existing cells?

- Option A. Mohl
- Option B. Virchow
- Option C. Haeckel
- Option D. Brown

Question: 3. Membranous extensions in blue green algae are known as

- Option A. phytochrome
- Option B. chromatophore
- Option C. mesosome
- Option D. pneumatophore

Question: 4. In which of the following the cells are held together by a Ca-pectate layer?

- Option A. Primary cell wall
- Option B. Secondary cell wall
- Option C. Middle lamella
- Option D. Tertiary cell wall

Question: 5. Function of contractile vacuole in Amoeba is

- Option A. excretion and osmoregulation.
- Option B. digestion and respiration.
- Option C. osmoregulation and transportation.
- Option D. none of the above.

Question: 6. Both the membranes of mitochondrion are

- Option A. structurally different but functionally similar.
- Option B. structurally as well as functionally different.
- Option C. structurally similar but functionally different.
- Option D. structurally different but functionally similar.

Question: 7. Polysome is a chain of

- Option A. oxysomes

- Option B. sphaerosomes
- Option C. ribosomes
- Option D. dictyosomes

Question: 8. Extension of plasma membrane in prokaryotic cell is

- Option A. mesosome
- Option B. haploid
- Option C. ribosome
- Option D. none of these

Question: 9. Plastids are found in

- Option A. all animal cells.
- Option B. some animal cells.
- Option C. all plant cells.
- Option D. all plant cells and euglenoides.

Question: 10. Lysosomes contain

- Option A. carbohydrates
- Option B. hormones
- Option C. nucleic acids
- Option D. hydrolases.

Question: 11. _____ is the important site of formation of glycoproteins and glycolipids.

- Option A. SER
- Option B. Lysosome
- Option C. Golgi apparatus
- Option D. Mitochondria

Question: 12. Golgi apparatus is concerned with

- Option A. excretion
- Option B. secretion
- Option C. ATP synthesis
- Option D. RNA synthesis

Question: 13. Plastids storing fat are called

- Option A. Elaioplasts
- Option B. Sphaerosomes
- Option C. Aleuroplasts
- Option D. Pyrenoids

Question: 14. Grana are

- Option A. protein storing plastids.

- Option B. coloured plastids.
- Option C. stacks of thylakoids.
- Option D. individual thylakoids present in stroma.

Question: 15. The best material for study of structure of cell membrane is

- Option A. RBC of human
- Option B. RBC of frog
- Option C. cheek cell of human
- Option D. liver cell of rat

Question: 16. Chromosomes having equal or almost equal arms are called

- Option A. metacentric
- Option B. acrocentric
- Option C. polycentric
- Option D. acentric.

Question: 17. The cytoskeleton is a proteinaceous network of fibres in the cytoplasm. It is involved in

- Option A. mechanical support.
- Option B. motility.
- Option C. maintenace of cell-shape.
- Option D. all of the above

Question: 18. Axoneme with 9 + 2 microtubular arrangement occurs in

- Option A. cilia
- Option B. flagella
- Option C. both (a) and (b)
- Option D. centriole

Question: 19. A component of cytoskeleton is

- Option A. microtubule
- Option B. bone
- Option C. chitin
- Option D. cartilage.

Question: 20. Which one of the following is not considered as part of the endomembrane system?

- Option A. Golgi complex
- Option B. Peroxisome
- Option C. Vacuole
- Option D. Lysosome

Question: 21. Prokaryotic and eukaryotic flagella differ in the

- Option A. type of movement and placement.
- Option B. location and mode of functioning.
- Option C. microtubular structure and function.
- Option D. microtubular organization and type of movement.

Question: 22. Function of RER is

- Option A. autolysis
- Option B. protein synthesis
- Option C. lipid synthesis
- Option D. carbohydrate synthesis

Question: 23. Integral proteins of cell membrane occur on/in

- Option A. inner surfaces
- Option B. outer surfaces
- Option C. phospholipid matrix
- Option D. inner and outer surfaces

Question: 24. Which of the following cell organelles were discovered after the introduction of electron microscope?

- Option A. Mitochondria
- Option B. Endoplasmic reticulum
- Option C. Ribosomes
- Option D. Both (b) and (c)

Question: 25. Active transport across biomembrane involves

- Option A. production of ATP
- Option B. requirement of energy
- Option C. production of toxin
- Option D. release of energy

Question: 26. Which one of the following structures between two adjacent cells is an effective transport pathway?

- Option A. Plasmodesmata
- Option B. Plastoquinones
- Option C. Endoplasmic reticulum
- Option D. Plasmalemma

Question: 27. Basal bodies are associated with the formation of

- Option A. phragmoplast
- Option B. cilia and flagella
- Option C. cell plate
- Option D. kinetochore

Question: 28. Nucleolus is

- Option A. rounded structure found in cytoplasm near nucleus.
- Option B. rounded structure inside nucleus and having rRNA.
- Option C. rod-shaped structure in cytoplasm near the nucleus.
- Option D. none of the above.

Question: 29. Centrioles and centrosomes occur in the cells of

- Option A. green plants
- Option B. animals
- Option C. bacteria and cyanobacteria
- Option D. both (b) and (c)

Question: 30. Satellite means

- Option A. terminal part of the chromosome beyond secondary constriction.
- Option B. terminal part of the chromosome beyond primary constriction.
- Option C. terminal part of chromosome beyond tertiary constriction.
- Option D. none of the above

Answer Sheet

1	B	The prokaryotic cells do not have nuclear membrane while eukaryotic cell have well organized nuclear membrane.
2	B	Rudolf Virchow (1855) first explained that cells divided and new cells are formed from pre-existing cells (omnis cellula-e cellula). It is also known as law of cell lineage.
3	B	In some prokaryotes like cyanobacteria or Blue-Green algae, there are other membranous extensions in the cytoplasm called chromatophores.
4	C	Middle lamella is the cementing layer between the cells. It is made up of Ca and Mg pectates.
5	A	Contractile vacuole is a sub-cellular structure (or organelle) which is found primarily in protists (for eg, Amoeba) and unicellular algae. Contractile vacuole is responsible for excretion and osmoregulation. It absorbs excess water and wastes from a microorganism's cell and excretes them into the environment by contracting. Contractile vacuoles function in a periodic cycle by expanding while collecting water and contracting to release the water.
6	B	The mitochondrion is a double membrane-bound organelle found in most eukaryotic cells. It contains outer and inner membranes composed of phospholipid bilayers and proteins. The two membranes have different properties. Because of this double-membrane organization, there are five distinct parts to a mitochondrion- the outer mitochondrial membrane, the intermembrane space (the space between the outer and inner membranes), the inner mitochondrial membrane, the cristae space (formed by infoldings of the inner membrane), and the matrix (space within the inner membrane). Mitochondria are also called as the power house of the cell.

7	C	Several ribosomes may attach to a single mRNA and forms a chain called polysomes. The ribosomes of a polysome translate the mRNA into proteins.
8	A	
9	D	Plastids are found in all plant cells and in euglenoides.
10	D	Lysosomes are originated by golgi complex and contain many hydrolytic enzymes (hydrolases lipases, proteases, carbohydrases) which are optically active at the acidic pH.
11	C	The Golgi apparatus (also known as the Golgi complex, Golgi body) is an organelle, identified in 1897 by the Italian physician Camillo Golgi and named after him in 1898. Golgi apparatus is the important site of formation of glycoproteins and glycolipids. It functions as a factory in which proteins received from the ER are further processed and sorted for transport to their ultimate endpoints: lysosomes, the plasma membrane.
12	A	Golgi apparatus principally performs the function of packaging material to be delivered either to the intra cellular targets or secreted outside the cell.
13	A	Elaioplasts are a type of leucoplast that is specialized for the storage of lipids in plants. Elaioplasts house oil body deposits as rounded plastoglobuli, which are essentially fat droplets.
14	C	Grana is a stacked membranous structure within the chloroplasts of plants and green algae that contains the chlorophyll (green pigment). It is the site of the light reactions of photosynthesis. The sac-like membranes that make up grana are known as thylakoids.
15	A	RBC (red blood cell) of the human is the best material for the study of structure of cell membrane. Chemical studies on the RBC cell membrane enabled the scientists to infer the possible structure of plasma membrane. The plasma membrane of the RBC consists of a complex, well-ordered group of lipids and proteins stretched over the outer surface of the cell in the form of a lipid bilayer punctuated by penetrating or attached proteins. This membrane has numerous properties that arise in part from specialized interactions between specific membrane proteins or lipids, or both.
16	A	Centromeres consist of a complex combination of proteins and DNA. They are essential to the division and ensure the accurate segregation of chromosomes. Metacentric chromosomes have the centromere in the centre, such that both sections are of equal length. Human chromosome 1 and 3 are metacentric.
17	D	The cytoskeleton is a series of intercellular proteins that help a cell with shape, mechanical support, and movement. Cytoskeleton has three main structural components: microfilaments, intermediate filaments, and microtubules.
18	C	Axoneme with 9 + 2 microtubular arrangement occurs in cilia and flagella. Cilia are hair like growths of the cell membrane. Flagella are comparatively longer and responsible for movement. The axoneme usually has nine pair of centrally located microtubules. Such an arrangement of axonemal microtubules is referred to as the 9 + 2 array.
		Microtubules are the largest cytoskeletal filaments in cells and found throughout the cytoplasm. They are filamentous intracellular structures that are responsible for various kinds of movements in all eukaryotic cells. They are involved in nucleic and cell

19	A	division, organization of intracellular structure, and intracellular transport, as well as ciliary and flagellar motility. They are formed by the polymerization of a dimer of two globular proteins, alpha and beta tubulin.
20	B	The endomembrane system includes endoplasmic reticulum, golgi complex, lysosomes and vacuoles.
21	D	Microtubular organization and type of movement differentiates prokaryotic flagella from eukaryotic flagella.
22	B	Rough endoplasmic reticulum (RER) is found throughout the cell but its density is higher near the nucleus and the Golgi apparatus. Ribosomes present on the rough endoplasmic reticulum are called 'membrane bound' and are responsible for the assembly of many proteins (in a process called translation (a step in protein synthesis)).
23	D	Integral proteins occur inside the lipid bilayer passing to its different depths. Some intrinsic proteins run throughout the thickness of the membrane. They are called transmembrane proteins.
24	D	Endoplasmic reticulum and ribosomes are the cell organelles which were discovered after the introduction of electron microscope.
25	B	An energy dependent process, in which ATP is utilised is called an active transport. e.g., Na ⁺ / K ⁺ Pump.
26	A	Plasmodesmata is an effective transport pathway present between two adjacent cells. They are microscopic channels which traverse the cell walls of plant cells and some algal cells, enabling transport and communication between them.
27	B	Basal body is a short cylindrical array of microtubules. It is formed from a centriole and associated with the formation of cilia and flagella. It is located at the base of eukaryotic cilia and flagella, which is a continuation of the 9 outer-axonemal microtubule doublets, but with the addition of a C tubule to form a centriole-like triplet. Basal bodies may be self-replicating and serve as a nucleating centre for axonemal assembly, which are anchored in the cytoplasm by rootlets.
28	B	Nucleolus is a small rounded body within a resting nucleus that contains RNA and proteins. It is usually associated with a specific chromosomal site and involved in ribosomal RNA synthesis and the formation of ribosomes.
29	B	A centriole is a barrel - shaped cell structure found in most animal eukaryotic cells, though absent in higher plants and most fungi.
30	A	Satellite is a small chromosomal segment separated from the main body of the chromosome by a secondary constriction. In humans it is usually associated with the short arm of an acrocentric chromosome. They play a vital role in the formation of the nucleolus after cell division. In humans, chromosomes number 13, 14, 15, 21 and 22 are examples of SAT (satellite) chromosomes.